

REMARKS

Status of the Claims

Claims 1-13 are pending in this application, the independent claims being claims 1 and 4. By this Amendment, claims 1 and 4 are amended.

Summary of Action

In the Official Action, claim 1 was rejected under 35 U.S.C. §102(b), as anticipated by U.S. Patent No. 6,338,017 (Kato), and claims 2-13 were rejected under 35 U.S.C. §103(a), as unpatentable over the Kato '017 patent in view of Japanese Patent Document No. 07-117655 (Shinji).

Reconsideration and withdrawal of the rejections respectfully are requested in view of the above amendments and the following remarks.

Summary of Examiner Interview

Applicants' attorney gratefully acknowledges the courtesies extended to him by Examiner Burch in granting a personal interview on March 22, 2006. Applicants' separate record of the substance of the interview is incorporated into the following remarks.

In the Examiner Interview, Applicants' attorney discussed various novel features of the claimed invention, and presented arguments distinguishing the claims over the cited art. In particular, Applicants attorney discussed the difference between a nominal or normal increase in the braking force generated in the front wheels during a braking force distribution operation, and an additional increment to that nominal/normal increase in the braking force generated in the front wheels during the braking force distribution operation; the claimed invention is directed to the feature of an increment to the nominal/normal increase, either by an amount based on the restricted amount of the braking force of the rear wheels during the braking force distribution operation (claim 1), or based on a detected increment of the braking action by the driver during the braking force distribution operation, as detected by a detector

(claim 4). It was agreed that these features are not disclosed in the prior art of record, and that claim 4 distinguishes over the cited art. Examiner Burch suggested that the language of claim 1 be amended/clarified to recite more clearly the difference between the (nominal) increase in the braking force and the (additional) increment in the braking force of the front wheels during a braking force distribution operation, as discussed in the Examiner Interview.

Formal Claim Amendments

The rejections of the claims over the cited art respectfully are traversed. Nevertheless, without conceding the propriety of the rejections, and as discussed in the Examiner Interview, claims 1 and 4 have been amended to recite more clearly various novel features of the claimed invention, with particular attention to the Examiner's comments in the Official Action and the Examiner Interview. Applicants believe that the amendments merely are formal in nature and obviate the outstanding rejections set forth in the Office Action. Reconsideration and withdrawal of the rejections respectfully are requested.

Claimed Invention

The present invention relates to a novel device and method for controlling braking of a vehicle. In one aspect, as recited in independent claim 1, the claimed invention relates to a device for controlling braking force of a vehicle having front and rear wheels and braking force generating apparatuses provided for each of the wheels. The device executes a braking force distribution control operation that restricts an increase of a braking force on the rear wheels, generated by the braking force generating apparatuses of the rear wheels, to provide a braking force distribution among the front and rear wheels, biased to the front wheels, under a predetermined condition. As the front wheel braking force increases during execution of the braking force distribution control operation, the device controls the braking force generating apparatuses of the front wheels to further increment the front wheel braking force based on a restricted amount of the braking force on the rear wheels.

In a similar aspect, as recited in independent claim 4, the claimed invention relates to a device for controlling a braking force of a vehicle having front and rear wheels, a braking system that generates braking forces on the respective wheels, and at least one sensor that monitors an operational condition of the vehicle, including a detector that detects an amount of a braking action by a driver of the vehicle. The device executes a braking force distribution control operation in which a braking force on the rear wheels is lowered in comparison with a braking force on the front wheels when an operational condition monitored by a sensor among the at least one sensor satisfies a predetermined condition, wherein the braking force on the front wheels during execution of the braking force distribution control is increased, and wherein a braking force increment on the front wheels beyond a braking force corresponding to the braking action is determined based upon an increment of the braking action by the driver detected by the detector.

Prior Art Distinguished

Applicants submit that the prior art fails to anticipate the claimed invention. Moreover, Applicants submit that there are differences between the subject matter sought to be patented and the prior art, such the subject matter taken as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made.

The Kato '017 Patent and JP 07-117655

The Kato '017 patent relates to a brake force distribution control device for automotive vehicles, and discloses a braking force distribution control that is initiated when the decelerations of all the wheels exceed a set value. However, Applicants submit that the Kato '017 patent fails to disclose or suggest at least the above-described features of the claimed invention. Rather, the Kato '017 patent is understood merely to describe a brake force distribution control system that, during a braking force distribution operation, establishes and maintains a predetermined relationship between the wheel cylinder pressure

of a front wheel and the wheel cylinder pressure of a rear wheel on the basis of a comparison between the wheel speeds of the front and rear wheels. Moreover, in the Kato '017 braking system, a "longitudinal braking force distribution control is *designed to bring the rear wheel braking force into a predetermined relationship with the front wheel braking force* dependent upon the difference between the front wheel speed and the rear wheel speed, which restricts the increasing slope of the braking force of the rear wheels, thereby preventing an earlier locked condition of each of the rear wheels" (see col. 6, lines 3-10).

Nowhere is the Kato '017 patent understood to disclose or suggest the feature wherein a braking control system controls braking force generating apparatuses of the *front wheels* to *increment* a front wheel braking force based on a restricted amount of braking force on the rear wheels during execution of the braking force distribution, as recited in claim 1.

Nor is the Kato '017 patent understood to disclose or suggest the feature wherein the braking force on the front wheels during execution of the braking force distribution control is increased, and wherein a braking force increment in the front wheels beyond a braking force increase corresponding to the braking action of a driver (detected by a detector) is determined based upon an increment of the braking action by the driver detected by the detector, as recited in independent claim 4.

With respect to claims 2, 3 and 5-13, as acknowledged by the Examiner, the Kato '017 patent also fails to disclose or suggest the features that the front wheel braking force is increased by determining an increment in the wheel cylinders of the front wheels based on the braking action by the driver, the pressures in the wheel cylinders of the rear wheel and parameters each indicating braking performances of the respective braking force generating apparatuses of the front and rear wheels, and incrementing pressure in the front wheel cylinders based upon the increment.

Applicants submit that **the JP '655 reference** fails to remedy the deficiencies of the Kato '017 patent. Specifically, Applicants submit that the JP '655 reference fails to disclose or suggest at least the above-discussed features of the claimed invention. Although the English Abstract of the JP '655 reference states the system is provided "to improve the stability of a vehicle by controlling the brake power distribution for the front and rear wheels so that the power increases on the front tire side," Applicants submit that this statement is misleading and inaposite in the present case. The JP '655 reference teaches a system in which the front wheel braking force is increased depending upon deterioration of *yaw* directional behavior of a vehicle. The increase in the front wheel braking force results in a reduction of the front wheel lateral force, which stabilizes a vehicle's yaw attitude against incorrect handling action by a driver. In this regard, the Japanese Abstract uses terminology relating to 'a driver's action.' However, this 'driver's action' refers to driver handling, that is, rotating a steering wheel - not depressing a braking pedal. Accordingly, Applicants submit that the JP '655 reference fails to add anything to the Kato '017 patent that would make obvious the claimed invention.

For the above reasons, Applicants submit claims 1 and 4 are allowable over the prior art.

Claims 2, 3 and 5-13 depend from claims 1 and 4, respectively, and are believed allowable for the same reasons. Moreover, each of these dependent claims recites additional features in combination with the features of its respective base claim, and is believed allowable in its own right. Individual consideration of the dependent claims respectfully is requested.

Entry of Amendment under 37 C.F.R. 1.116

Entry of the amendments is proper under 37 CFR §1.116 since the amendments: (a) place the application in condition for allowance (for the reasons discussed in the Examiner Interview and herein); (b) do not raise any new issue requiring further search and/or consideration (as the amendments merely amplify issues previously discussed throughout prosecution); (c) satisfy a requirement of form asserted in the previous Office Action; (d) do not present any additional claims without canceling a corresponding number of finally rejected claims; and (e) place the application in better form for appeal, should an appeal be necessary. The amendments are necessary and were not earlier presented because they are made in response to arguments raised in the final rejection and the personal interview. Entry of the amendments is thus respectfully requested.

Conclusion

Applicants believe the present Amendment is responsive to each of the points raised by the Examiner in the Official Action and in the personal interview, and submit that the application is in condition for allowance. Favorable consideration of claims 1-17 and passage to issue of the subject application at the Examiner's earliest convenience earnestly are solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,


James A. Oliff

Registration No. 27,075

Christopher Philip Wrist

Registration No. 32,078

JAO:CPW

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OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

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